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16. Abstract A nighttime field study was conducted to assess the effects of color on the detection of retroreflective pedestrian markings. Participants, seated in a stationary vehicle with its low-beam headlamps on, indicated when a moving pedestrian, who wore colored retroreflective markings on her legs, was just detectable. Independent variables included color (red, yellow, green, and white), retroreflective power (SIA), and participant age. This experiment demonstrated that the color of a retroreflective marking does affect the distance at which a moving pedestrian can be detected. Specifically, all three chromatic stimuli examined (red, yellow, and green) were detected at significantly greater distances (ranging from 7 to 10%) than was the achromatic stimulus (white). Additional modeling determined that to be detected at the same distance as a red, yellow, or green stimulus, a white stimulus would need to be 26 to 44% higher in SIA value. The results are consistent with previous research by Schumann et al. (1996), in which colored retroreflective stimuli were perceived by participants to be brighter than a comparable white stimulus. Furthermore, the findings are in agreement with the Helmholtz-Kohlrausch effect. In addition, a strong linear relationship was found to exist between the color correction factors determined in this experiment and those predicted by ASTM E 1501. However, the exact relationship between the experimental results and predicted ASTM color correction factors appears to be affected by the nature of the experimental task.					
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